

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

| | |
|---|---|
| Date of mailing (day/month/year) 25 April 2001 (25.04.01) | |
| International application No. PCT/EP00/06948 | Applicant's or agent's file reference T80731PCT |
| International filing date (day/month/year) 20 July 2000 (20.07.00) | Priority date (day/month/year) 20 July 1999 (20.07.99) |
| Applicant DALLA VILLA, Giorgio et al | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
06 February 2001 (06.02.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

| | |
|---|--|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer Claudio Borton Telephone No.: (41-22) 338.83.38 |
|---|--|

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) T80731PCT

| | |
|---|---|
| Box No. I TITLE OF INVENTION | |
| Audio Signal Sound Diffusion System | |
| Box No. II APPLICANT | |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.) | |
| ADT Services AG P.O. Box 1571 Schwertstrasse 9 CH - 8201 Schaffhausen Switzerland | |
| <input type="checkbox"/> This person is also inventor. | |
| Telephone No. | |
| Facsimile No. | |
| Teleprinter No. | |
| State (that is, country) of nationality: CH | State (that is, country) of residence: CH |
| This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box | |
| Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S) | |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.) | |
| DALLA VILLA, Giorgio Viale Kennedy 28 20064 Gorgonzola (Mi) ITALY | |
| This person is: <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.) | |
| State (that is, country) of nationality: IT | State (that is, country) of residence: IT |
| This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box | |
| <input checked="" type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet. | |
| Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE | |
| The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative | |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) | |
| FROHWITTER Bernhard Possartstr. 20 81679 München GERMANY | |
| Telephone No. +49-89 99 80 90 | |
| Facsimile No. +49-89 99 80 95 55 | |
| Teleprinter No. | |
| <input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent. | |

| | | | |
|--|--|--|--|
| Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S) | | | |
| <i>If none of the following sub-boxes is used, this sheet should not be included in the request.</i> | | | |
| <p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> <p>GACCIOLI, Carlo Via Padova 95 20127 Milano ITALY</p> | | <p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input checked="" type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p> | |
| State (that is, country) of nationality: IT | | State (that is, country) of residence: IT | |
| <p>This person is applicant for the purposes of:</p> <p><input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p> | | | |
| <p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> | | <p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p> | |
| State (that is, country) of nationality: | | State (that is, country) of residence: | |
| <p>This person is applicant for the purposes of:</p> <p><input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p> | | | |
| <p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> | | <p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p> | |
| State (that is, country) of nationality: | | State (that is, country) of residence: | |
| <p>This person is applicant for the purposes of:</p> <p><input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p> | | | |
| <p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> | | <p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p> | |
| State (that is, country) of nationality: | | State (that is, country) of residence: | |
| <p>This person is applicant for the purposes of:</p> <p><input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p> | | | |
| <p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> | | <p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p> | |
| State (that is, country) of nationality: | | State (that is, country) of residence: | |
| <p>This person is applicant for the purposes of:</p> <p><input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p> | | | |
| <p><input type="checkbox"/> Further applicants and/or (further) inventors are indicated on another continuation sheet.</p> | | | |

Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):


Regional Patent

- ☒ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|--|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MA Morocco |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BR Brazil | |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> TZ United Republic of Tanzania |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IS Iceland | |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> ZA South Africa |
| | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KR Republic of Korea | Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet: |
| <input checked="" type="checkbox"/> KZ Kazakhstan | <input checked="" type="checkbox"/> AG Antigua and Barbuda, DZ Algeria |
| <input checked="" type="checkbox"/> LC Saint Lucia | <input checked="" type="checkbox"/> Belize, MZ Mozambique |
| <input checked="" type="checkbox"/> LK Sri Lanka | |

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

| Box No. VI PRIORITY CLAIMS | | <input type="checkbox"/> Further priority claim indicated in the Supplemental Box. | | |
|--|-------------------------------|--|---------------------------------------|---|
| Filing date of earlier application (day/month/year) | Number of earlier application | Where earlier application is: | | |
| | | national application: country | regional application: regional Office | international application: receiving Office |
| item (1) July 20, 1999 | MI99A001597 | IT | | |
| item (2) | | | | |
| item (3) | | | | |
| <input type="checkbox"/> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): | | | | |
| <i>* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.</i> | | | | |
| Box No. VII INTERNATIONAL SEARCHING AUTHORITY | | | | |
| Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used): | | Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority): Date (day/month/year) Number Country (or regional Office) | | |
| ISA / European Patent Office | | | | |
| Box No. VIII CHECK LIST; LANGUAGE OF FILING | | | | |
| This international application contains the following number of sheets: request : 4 description (excluding sequence listing part) : 11 claims : 3 abstract : 1 drawings : 4 sequence listing part of description : Total number of sheets : 23 | | This international application is accompanied by the item(s) marked below: 1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> separate signed power of attorney 3. <input type="checkbox"/> copy of general power of attorney, reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input type="checkbox"/> other (specify): | | |
| Figure of the drawings which should accompany the abstract: 1 | | Language of filing of the international application: English | | |
| Box No. IX SIGNATURE OF APPLICANT OR AGENT | | | | |
| Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request). | | | | |
| Munich, July 20, 2000 | | | | |
|  Edward Tomlinson, Ph.D. European Patent Attorney | | | | |

| | | |
|---|--|--|
| For receiving Office use only | | 2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received: |
| 1. Date of actual receipt of the purported international application: | | |
| 3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application: | | |
| 4. Date of timely receipt of the required corrections under PCT Article 11(2): | | |
| 5. International Searching Authority (if two or more are competent): ISA / | | 6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid. |

| |
|---|
| For International Bureau use only |
| Date of receipt of the record copy by the International Bureau: |

The demand must be filed directly with the competent International Preliminary Examining Authority if two or more Authorities are competent, with the one chosen by the applicant. The name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/EP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

| | |
|------------------------|---------------------------|
| Identification of IPEA | Date of receipt of DEMAND |
|------------------------|---------------------------|

| | | |
|--|--|---|
| Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION | | Applicant's or agent's file reference T80731PCT |
| International application No. PCT/EP00/06948 | International filing date (day/month/year) 20/07/2000 | (Earliest) Priority date (day/month/year) 20/07/1999 |
| Title of invention Audio Signal Diffusion System | | |
| Box No. II APPLICANT(S) | | |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) ADT Services AG P. O. Box 1571 Schwertstrasse 9 CH-8201 Schaffhausen Switzerland | | Telephone No.: |
| | | Facsimile No.: |
| | | Teleprinter No.: |
| State (that is, country) of nationality: CH | | State (that is, country) of residence: CH |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) DALLA VILLA, Giorgio Viale Kennedy 28 20064 Gorgonzola (Mi) ITALY | | |
| State (that is, country) of nationality: IT | | State (that is, country) of residence: IT |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) GACCOLI, Carlo Via Padova 95 20127 Milano ITALY | | |
| State (that is, country) of nationality: IT | | State (that is, country) of residence: IT |
| <input type="checkbox"/> Further applicants are indicated on a continuation sheet. | | |

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Frohwitter Bernhard, Tomlinson Edward, Glomm Bernhard

Frohwitter Patent- und Rechtsanwälte
Possartstraße 20
D-81679 München
Germany

Telephone No.:

+49-89 99 80 90

Facsimile No.:

+49-89 99 80 9555

Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments: ***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☐ as originally filed☐ as amended under Article 34the claims ☐ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☐ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☐ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|--|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (<i>specify</i>) | : | sheets |

For International Preliminary Examining Authority use only

received not received

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 4. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> separate signed power of attorney | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: | 6. <input type="checkbox"/> other (<i>specify</i>): |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).



Edward Tomlinson, European Patent Attorney

Munich, February 6, 2001

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

- | | |
|--|---|
| 3. <input type="checkbox"/> The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. | <input type="checkbox"/> The applicant has been informed accordingly. |
| 4. <input type="checkbox"/> The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5. | |
| 5. <input type="checkbox"/> Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82. | |

For International Bureau use only

Demand received from IPEA on: ,

PCT

FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

| | | |
|--|--|---|
| International application No. PCT/EPO00/06948 | For International Preliminary Examining Authority use only | |
| Applicant's or agent's file reference T80731PCT | Date stamp of the IPEA | |
| Applicant ADT Services AG et al | | |
| Calculation of prescribed fees | | |
| 1. Preliminary examination fee | 1533,00 EUR | <input type="checkbox"/> P |
| 2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i> | 147,00 EUR | <input type="checkbox"/> H |
| 3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box..... | 1680,00 EUR | |
| TOTAL | | |
| Mode of Payment | | |
| <input type="checkbox"/> authorization to charge deposit account with the IPEA (see below) | <input type="checkbox"/> cash | |
| <input checked="" type="checkbox"/> cheque | <input type="checkbox"/> revenue stamps | |
| <input type="checkbox"/> postal money order | <input type="checkbox"/> coupons | |
| <input type="checkbox"/> bank draft | <input type="checkbox"/> other (specify): | |
| Deposit Account Authorization <i>(this mode of payment may not be available at all IPEAs)</i> | | |
| The IPEA/ EP <input type="checkbox"/> is hereby authorized to charge the total fees indicated above to my deposit account. | | |
| <input checked="" type="checkbox"/> <i>(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)</i> is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account. | | |
| 28000905 | February 6, 2001 | Edward Tomlinson, European Patent Attorney |
| Deposit Account Number | Date (day/month/year) | Signature |

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY-EXAMINING AUTHORITY

PCT

To:

FROHWITTER
Patent- und Rechtsanwälte
Possartstrasse 20
D-81679 München
ALLEMAGNE

RECEIVED

MAR 03 2001

FROHWITTER - MÜNCHEN
Patent- und Rechtsanwälte
Possartstrasse 20
D-81679 München
ALLEMAGNE

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

Date of mailing
(day/month/year)

- 8. 03. 01

Applicant's or agent's file reference

T80731PCT

IMPORTANT NOTIFICATION

International application No.

PCT/EP 00/ 06948

International filing date (day/month/year)

20/07/2000

Priority date (day/month/year)

20/07/1999

Applicant

ADT SERVICES AG et al

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

06/02/2001

2. This date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).
☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).
☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/

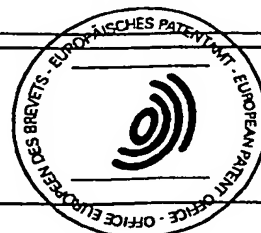


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PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

| | | |
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| To: FROHWITTER Patent- und Rechtsanwälte Possartstrasse 20 D-81679 München ALLEMAGNE | Deadline: <div style="border: 1px solid black; padding: 5px; text-align: center;"> RECEIVED JUN 07. 2001 FROHWITTER MÜNCHEN Patent- und Rechtsanwälte Intellectual Property Counselors </div> | NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1) |
| Reminder | Date of mailing (day/month/year) 06.11.2001 | |

| | |
|---|---|
| Applicant's or agent's file reference T80731PCT | IMPORTANT NOTIFICATION |
| International application No. PCT/EP00/06948 | International filing date (day/month/year) 20/07/2000 |
| Priority date (day/month/year) 20/07/1999 | |

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| Applicant ADT SERVICES AG et al |
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1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

 The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

 Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

 For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

| | |
|---|--|
| Name and mailing address of the IPEA/ <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div> | Authorized officer Andreatta, R Tel. +49 89 2399-7581 |
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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|--|---|---|--|
| Applicant's or agent's file reference T80731PCT | | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/EP00/06948 | International filing date (day/month/year) 20/07/2000 | Priority date (day/month/year) 20/07/1999 | |
| International Patent Classification (IPC) or national classification and IPC G08B29/12 | | | |
| Applicant ADT SERVICES AG et al | | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.



- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

**CORRECTED
VERSION**

| | |
|---|--|
| Date of submission of the demand 06/02/2001 | Date of completion of this report 06.11.2001 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized officer Faoro, G Telephone No. +49 89 2399 2650  |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/06948

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-11 as originally filed

Claims, No.:

1-12 as received on 04/10/2001 with letter of 04/10/2001

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/06948

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | |
|-------------------------------|------------------|
| Novelty (N) | Yes: Claims 1-12 |
| | No: Claims |
| Inventive step (IS) | Yes: Claims |
| | No: Claims 1-12 |
| Industrial applicability (IA) | Yes: Claims 1-12 |
| | No: Claims |

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

To section V

1) In its amended still rather general formulation, claim 1 is essentially claiming an audio signal sound diffusion system comprising conventional basic components such as diffusers, amplifiers and generation circuits, a control circuit to detect malfunctions and, if malfunctions are detected, to send status alarm via connection means to a management system, whereby "said status alarm signal indicates which of a plurality of malfunction has occurred".

The claimed features are essentially corresponding, for instance, to those disclosed in the prior art document GB-A-2307082 (D1) of the Search Report and dealing with an alarm apparatus and a monitoring method to detect malfunctions of the system. In D1 a "microprocessor 14 determines if a fault condition exists ...and transmit an alert signal to the control panel 16 of a security circuit 15, which in turn relays an alert signal to a central monitoring station over a telephone network" (see abstract).

In D1, however, only a general alarm signal is provided in case of a malfunction, i.e. the system of D1 is not capable of providing information about the nature of the malfunction as the present application on the contrary does. Amended claim 1 is therefore **new** with respect to the cited prior art and is thus ~~not~~ satisfying the requirement of Art. 33 (2) PCT.

2) While the distinguishing feature of amended claim 1 is deemed new, at least in the claimed field of the audio signal sound diffusion system, the feature is **not** deemed **inventive**, and therefore contrary to Art. 33(3) PCT, for the reason that the claimed general feature of indicating which of a plurality of malfunction has occurred is a general and obvious aim of monitoring and testing systems for the obvious reason of facilitating maintenance. The provision of detailed testing facilities is a normal design practice for the skilled man in many technical fields (e.g. cars, security systems, telecommunication systems...) and inherent to the technological progress of the past years with the decreasing cost of technology and increased electronic data processing capability. The mere indication of the choice of providing a detailed alarm signal indication of which malfunction has occurred is therefore not deemed inventive, as no unusual technical progress

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/06948

can be seen in this choice and as no particular technical solution is indicated.

2) Also in the additional features of the dependent claims 2 to 12 is not possible to identify technical features of inventive significance (contrary to Art. 33(3) PCT) as they relates to normal design choices and obvious implementation of test circuits.

To section VII

1) Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT.

2) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed for instance in the document D1 is not mentioned in the description, nor is this document identified therein.

CLAIMS

1. Audio signal sound diffusion system, characterised in that it comprises:

- at least one diffuser (35a-38a, 35b-38b);
- at least one amplifier (31-34) connected to said at least one diffuser (35a-38a, 35b-38b);
- a generation circuit (27), connected to said at least one amplifier (31-34), for generating at least one audio signal;
- a control circuit (10) for controlling said sound diffusion system adapted to detect malfunctions of said diffusion system and to generate an appropriate status alarm (14) of said diffusion system in response thereto; and
- connection means (17, 40) adapted to connect said control circuit (10) to a management system,

said control circuit (10) being adapted to send to said management system at least one status alarm (14) of said sound diffusion system, said status alarm signal indicating which of a plurality of malfunctions has occurred.

2. Sound diffusion system according to claim 1, characterised in that said audio signal is an alarm signal.

3. Sound diffusion system according to claim 2, characterised in that it comprises a local control (16) for the manual activation of said at least one alarm signal.

4. Sound diffusion system according to claim 1, characterised in that said at least one status alarm indicates a malfunction selected from the list of: lack of mains voltage, failure of said at least one amplifier (31-34), failure of said at least one diffuser (35a-38a, 35b-38b), and a charge state of reserve batteries (13) for powering said diffusion system in the event of lack of mains voltage.

5. Sound diffusion system according to claim 1, characterised in that said control circuit (10) comprises a test circuit (27, 30) adapted to cyclically check the correct operation of said at least one amplifier (31-34).
6. Sound diffusion system according to claim 1, characterised in that said control circuit (10) comprises a test circuit (27, 30) adapted to cyclically check the correct operation of said at least one diffuser (35a-38a, 35b-38b).
7. Sound diffusion system according to claims 5 or 6, characterised in that said test circuit (27) sends a test signal (25) to the input of said at least one amplifier (31-34) and measures the relevant signal at the output of said at least one amplifier (31-34).
8. Sound diffusion system according to claim 2, characterised in that said management system is a computer.
9. Sound diffusion system according to claim 8, characterised in that said computer allows the programming of the parameters of said at least one alarm signal (14).
10. Sound diffusion system according to claim 1, characterised in that said management system is remote and is connected to said control circuit (10) through cable.
11. Sound diffusion system according to claim 1, characterised in that said management system is remote and it is connected to said control circuit (10) through telephone line (41) or optical fibre (42) or radio link (43).
12. Sound diffusion system according to claim 2, characterised in that said management system is adapted to send to said sound diffusion system an activation command (15) of said at least one alarm signal.

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International Bureau



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MI99A001597 **20 July 1999 (20.07.1999)** **IT**
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- Published:**
— *With international search report.*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **AUDIO SIGNAL SOUND DIFFUSION SYSTEM**

(57) Abstract: The present invention relates to an audio signal sound diffusion system for diffusing, e.g., alarm signals, pre-recorded signals and microphone signals over wide areas. According to one of its aspects, the present invention relates to an audio signal sound diffusion system characterised in that it comprises: at least one diffuser (35a-38a, 35b-38b); at least one amplifier (31-34) connected to said diffuser (35a-38a, 35b-38b); a generation circuit (27) for generating at least one audio signal connected to said amplifier (31-34); a control circuit (10) for controlling said sound diffusion system adapted to detect the malfunctions of said diffusion system and to generate a status alarm (14) of said diffusion system; connection means (17, 40) adapted to connect said control circuit (10) to a management system; said control circuit (10) is adapted to send to said management system at least one status alarm (14) of said sound diffusion system.

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AUDIO SIGNAL SOUND DIFFUSION SYSTEM

Technical field

The present invention relates to an audio signal sound diffusion system such as the diffusion of alarm signals, pre-recorded signals and microphone signals
5 over wide areas.

Background Art

For the diffusion of alarm signals and vocal announcements over wide areas, a plurality of diffusers connected to one or more amplifiers are normally used.

10 Such apparatuses, that signal the existence of a danger, have operating periods limited in time alternated by non-operating periods of long length.

In such long inactivity of the apparatuses, which are normally located outside and so exposed to bad weather, they can be subject to failures.

At the moment of their activation, in case of danger, they can be out of
15 order and so they cannot be able to fulfil their task.

Additionally, in case of audio signal sound diffusion systems for wide areas, such as for example the area of an airport or barracks, where different diffusion apparatuses are necessary, whose operating efficiency must be substantially equal to 100%, the activation and control problems of such
20 apparatuses become relevant.

An object of the present invention is to provide an audio signal sound diffusion system able to overcome the inconveniences mentioned above.

Disclosure of the Invention

According to the present invention, such object is achieved through an audio signal sound diffusion system characterised in that it comprises: at least one diffuser; at least one amplifier connected to said diffuser; a generation circuit of at least one audio signal connected to said amplifier; a control circuit of said sound diffusion system adapted to detect malfunctions of said diffusion system and to generate a status alarm of said diffusion system; connection means adapted to connect said control circuit to a management system; said control system is adapted to send to said management system at least a status alarm of said sound diffusion system.

Thanks to the present invention it is possible to realise a diffusion system able to keep under control, by a management system, the operation of the different elements that form the diffusion system so that a high efficiency is guaranteed.

Brief Description of the Drawings

The characteristics and the advantages of the present invention will be evident from the following detailed description of one of its embodiments, described as a non-limiting example in the drawings enclosed, wherein:

Figure 1 shows schematically a diffusion point of the diffusion system according to the present invention;

Figure 2 shows a block diagram of the control circuit of a diffusion point of the diffusion system according to the present invention;

Figure 3 shows a block diagram of the amplifiers and the diffusers of a diffusion point of the diffusion system according to the present invention;

Figure 4 shows a block diagram of an interface circuit that allows the connection between a diffusion point to a remote management system according to the present invention.

Detailed Description of the Invention

In Figure 1 number 1 indicates a diffusion point of a diffusion system according to the present invention, that comprises a plurality of diffusers 2 (for example 45W LBC3493/10 horns manufactured by Philips) preferably formed by four groups of seven horns. Such diffusers 2 are located on a pole 3 having an effective length equal to for example 12 meters (for example a Fe510 pole having a base diameter of 355 mm provided by Siderpali), inserted into ground 5. Beside pole 3 a cabinet 4 is located, that contains the control circuit necessary for the operation of diffusion point 1.

In Figure 2 a control circuit 10 is shown, that is powered by mains 11 or, as an alternative, when the mains 11 does not work, by an emergency power supply made of batteries 13 and a relevant battery charger 12 made of two elements 12a and 12b connected in parallel.

Locally, control circuit 10 has a microphone 21 for the diffusion of local vocal announcements, a loudspeaker 20 used as monitor, a series of inputs called local controls 16 that come from a series of switches (put on an external panel not shown in the figure) that allow to activate manually the alarm signal or signals pre-recorded in the control circuit 10, a reset switch to stop the alarm diffusion and a (priority) switch to activate the local controls or remote controls.

Additionally, control circuit 10 comprises an audio input 19 and an audio output 18, a series of remote control inputs 15 having the same functions as local controls 16 and having further an input for the introduction of a remote audio signal.

There is a series of local alarm outputs (or status alarms of diffusion point 1) 14 including the following signalling: local control in progress, priority switch on local, lack of mains, battery low - first level, battery low -second level and amplifier/horns alarm.

Remote control inputs 15 and local alarm outputs 14 are made available to the terminal boxes (not shown in the figures) of the diffusion point 1, for the cable connection (in particular one connection wire for each signal of remote controls 15 and each signal of the local alarms 14) of control circuit 10 to a remote management system. The remote management system is made, in this case, preferably of a computer, but control switches (for remote controls 15) and signal lamps (for local alarms 14) can also be used.

There are also a series of vocal and alarm outputs 24 that are connected at the amplifiers input, a series of on/off outputs 26 for the switching on and off of the amplifiers, an output of the test signal 25 to be applied at the amplifiers input, an output of a control signal 23 of a test relay able to switch the measurement input 22 between each of the amplifiers outputs.

An RS232 connection 17 is also included, locally as well, for the connection to a local management system, in particular a computer for the programming of the parameters relevant to the type or types of alarms to be pre-recorded, for example frequency, duration, rising time, falling time and signal level; and, additionally, to program the initial settings that will be necessary during the operation of the diffusion system to diagnose amplifiers and horns malfunctions.

Control circuit 10 is made of several circuits or boards as it will be described later on.

The system core is Alarm Generator and CPU board 27. Such board 27, through a bus, controls all the other boards and manages the audio signals route towards the final amplifiers. Board 27 receives the controls for the generation of alarms through local or remote inputs and controls, through digital outputs, the lamps of the buttons of the frontal panel, the switching of the inputs of the audio signal and alarm signal of the amplifiers. The alarm generation is realised by board 27. The alarm signal generated in that way is provided on two separate

outputs so that it is possible to independently regulate the local signal towards the amplifiers "call" inputs and the remote signal towards the remote audio output. Board 27 also provides a 20 kHz test signal towards the amplifiers for the control function of the amplifier and horn status.

5 A preamplifier board 28 receives the remote audio signal and the local microphone signal, provides for their regulation and so for the sending of the signal selected at the "music" inputs of the final amplifiers. This board provides also for the amplification of the signal towards the local monitor loudspeaker.

10 An alarm board 29 receives from the power supply rack, through the battery status control circuits, the status signals relevant to the mains 11 and the charge level of batteries 13: "partially discharged" or "discharged", and it makes it available with the local alarms. Through these signals the board is able to manage the power amplifiers and, in case mains is lacking, realise a load reduction through On/Off commands towards the amplifiers. In case mains 11 voltage is
15 lacking, control circuit 10 provides four On/Off commands 26 connected to amplifiers 31-34; on a first level of battery discharge two amplifiers are switched off, on a second discharge level the last two amplifiers are switched off, obtaining in this way the load reduction and the growth of the service autonomy even if at reduced conditions.

20 In case the level of batteries 13 is exceedingly low because of a discharge due to a long interruption of mains or failure of the batteries themselves, all the amplifiers 31-34 will be deactivated in order to avoid their total discharge but the control circuit is anyway kept powered to be able to send to the management system the diffusion point alarm status.

25 The measurement board 30 receives from CPU board 27 an amplifier polling command and provides to select the contact of the relay associated to the output of the amplifier under measurement; the switch contacts of the relay provide to send

back towards the measurement board the signal at 20 kHz present at the output. Through the measure of this signal, the board is able to verify the status of the amplifier (out of order or working) and of the load represented by the horns (load connected or open) and communicate it to the alarm board.

5 In Figure 3 a block diagram of the amplifiers 31-34 and the diffusers 35a-38a and 35b-38b of a diffusion point of the diffusion system according to the present invention is shown, wherein the signals coming from the block diagram of Figure 2 are evident. In particular, measurement signal 22, control signal 23 of the test relay 39, test signal 25a-25d and vocal and alarm signals 24a-24d are evident.
10 Relay 39 cyclically connects via control signal 23 measurement signal terminal 22 to each output of the amplifiers 31-34. In Figure 3 only one relay 39 is schematically represented, but it is possible to use one relay for each output of amplifiers 31-34, controlled by suitable signals 23.

In Figure 4 a block diagram of an interface circuit 40 is shown, that allows
15 the connection of the control circuit 10 of a diffusion point to a remote management system. It has a series of connection signals with the analogous ones of Figure 2 such as remote controls 15, local alarms 14 and RS232 connection 17. Additionally, it has, as a connection with the outside world, in alternative or in combination for more security, a connection 41 with a two-wire telephone cable,
20 an optical fibre connection 42 and a link to a radio transceiver 43. Interface 40 allows the communication of the diffusion point with a remote management system that receives local alarms 14 in such a way that it knows the operating state of the diffusion system and, besides, can send, through remote controls 15, the activation signals of diffusion point 1.

25 The remote management system, made in this case, preferably of a computer, is connected, on request, through the selected connection method (telephone cable plus modem, optical fibre or radio link) to each diffusion point located in the control area and controls its status. The remote management system

operator, according to the control results, can therefore arrange eventual repairs; additionally, he can remotely activate the alarm signals or send a vocal signal or modify the characteristic parameters of the alarm signals.

In the example described, reference is made to the sound diffusion of alarm signals for an airport or barracks area; therefore, in this case, the alarm signals are more than one and in particular they are:

- general alarm: for example continuous sound that lasts 3 minutes,
- air alarm: for example modulated sound that lasts 1 minute,
- N.B.C. alarm: for example sound that lasts 12 sec., followed by a silence interval of 12 sec., the whole lasting 3 minutes.

These alarm signals can be locally activated through dedicated buttons located on the rack frontal panel or remotely.

Through a priority switch located on the rack frontal panel it is possible to give priority to the local controls or the remote controls.

All the parameters that make the alarm signal (frequency, duration, interval and levels) can be adjusted via software during the setting up through RS232 connection 17.

Measurement board 30 cyclically, for example every 30 minutes, controls (polls) the correct operation of amplifiers 31-34 and of the load formed by horns 35a-38a and 35b-38b; test signal 25a-25d at 20kHz is fed to one of the inputs of amplifiers 31-34 and it is cyclically read (through measurement signal 22) on the corresponding output connected to its horns group through relay control signal 23.

In this way the system is always able to recognise the status of the diffusion point, the possible damage of an amplifier or the interruption of the horns.

The type of amplifier used in the example is LBB1348/40 manufactured by PHILIPS with an output power of 400 W and a voltage of 100 V.

The amplifiers has two balanced audio inputs: a "call" input used for alarm tones with fixed signal level and a "music" input with adjustable level used for the audio signal. The switch between these two inputs is controlled by control circuit 10 through a suitable signal not shown in the figure.

The programming of the parameters relevant to the alarm types to be recorded, during the setting up of the system and in any other update situation, is made according to the following steps.

Load on the computer the application package, connect the computer serial port to RS232 connection 17 and run the application.

Verify on the status bar that the signal SERIAL CONNECTION be green, that the polling signalling be intermittent (operating connection) and that there are no red alarm signals (local alarms 14).

GENERAL ALARM SETTING

Click with the mouse on RESET button to visualise the current recorded values. If it is necessary, modify with the mouse the cursor position on the frequency scale; move the mouse on the data field DURATION and input the new value of continuous sound interval in seconds. Record the new values by clicking with the mouse on RECORD button.

N.B.C. ALARM SETTING

Click with the mouse on RESET button to visualise the current recorded values. If it is necessary modify with the mouse the cursor position on the frequency scale; move the mouse on the data fields DURATION, SOUND and PAUSE and input the new values, respectively in seconds for the whole alarm

interval, sound interval and silence interval. Record the new values by clicking with the mouse on RECORD button.

AERIAL ALARM SETTING

Click with the mouse on RESET button to visualise the current recorded values. If it is necessary modify with the mouse the cursors position on the modulated sound start and end frequency scale; move the mouse on the data fields DURATION, RISE and FALL and input respectively the new values in seconds for the whole alarm duration, modulated sound rising time and falling time. Record the new values by clicking with the mouse on RECORD button.

10 GENERATOR LEVEL SETTING

Click with the mouse on RESET button to visualise the current recorded values. If it is necessary modify with the mouse the cursors position on the levels scale. For LOCAL level, push the GENERAL ALARM button on the frontal panel to have a continuous sound and adjust with the mouse the cursor position to have on the amplifiers voltmeter the indication of +3dB. For the REMORE level, activate remotely the control for GENERAL ALARM to have a continuous sound and adjust with the mouse the cursor position to have on the amplifiers voltmeter the indication of +3dB. Record the new values by clicking with the mouse on RECORD button.

20 The programming of the initial settings that will be useful during the diffusion system operation to diagnose the malfunctioning of the amplifiers or the horns is made according to the following steps.

Load on the computer the application package, connect the computer serial port to RS232 connection 17 and run the application. Click on Diagnose menu on Menu bar.

Verify on the status bar that the signal SERIAL CONNECTION be green, that the polling signals be intermittent (operating connection) and that there are no red alarm signals.

ADJUSTMENT LEVEL 3 – DIFFUSERS NOT CONNECTED

- 5 Open each amplifier load, by disconnecting the relevant cable on the rack terminal box. Click with the mouse on button TEST AMPL 1 and verify that the level be 2.5 V. If the level is different, adjust with the mouse the cursor on the level scale to have a reading equal to 2.5V. Click with the mouse on button INSERT LEVEL 3, the value beside the button will assume value 2.5V. Click with
10 the mouse on button RECORD to record the value. Repeat the sequence for all the other amplifiers. At the end of the amplifier tests click with the mouse on button TEST END.

ADJUSTMENT LEVEL 1 – DIFFUSERS CONNECTED

- 15 Connect each amplifier load, by fixing the relevant cable on the rack terminal box. Click with the mouse on button TEST AMPL 1. Click with the mouse on button INSERT LEVEL 1, the value beside the button will assume the read value. Click with the mouse on button RECORD to record the value. Repeat the sequence for all the other amplifiers. At the end of the amplifier tests click with the mouse on button TEST END.

20 ADJUSTMENT LEVEL 2 – PARTIALLY CONNECTED DIFFUSERS

LEVEL 2 is a fixed reference value of intermediate between the two extreme values for the detection of partially connected diffusers. This value cannot be adjusted.

ADJUSTMENT OF THE INTERVAL TIME FOR THE AUTOMATIC TEST
(for the control of horns and amplifiers)

Input in the data field AUTOMATIC MEASURE FIELD the value in minutes of the pause time between an automatic test and the following one
5 (nominally 30 minutes). Click with the mouse on RECORD button, in the automatic test field, to record the value. Click on AUTOMATIC TEST button to start the operation; on the data field the test signal measured values at 20 kHz of the four amplifiers appear. Exit from diagnose menu and go back to the initial window by clicking with the mouse on CLOSE button. To exit the program, select
10 with the mouse EXIT menu.

CLAIMS

1. Audio signal sound diffusion system, characterised in that it comprises:
 - at least one diffuser (35a-38a, 35b-38b);
 - at least one amplifier (31-34) connected to said diffuser (35a-38a, 35b-38b);
 - 5 - a generation circuit (27) for generating at least one audio signal connected to said amplifier (31-34);
 - a control circuit (10) for controlling said sound diffusion system adapted to detect the malfunctions of said diffusion system and to generate a status alarm (14) of said diffusion system;
 - 10 - connection means (17, 40) adapted to connect said control circuit (10) to a management system;said control circuit (10) being adapted to send to said management system at least one status alarm (14) of said sound diffusion system.
2. Sound diffusion system according to claim 1, characterised in that said
15 audio signal is an alarm signal.
3. Sound diffusion system according to claim 2, characterised in that it comprises a local control (16) for the manual activation of said at least one alarm signal.
4. Sound diffusion system according to claim 1, characterised in that said at
20 least one status alarm (14) comprises signalling the lack of mains voltage (11).
5. Sound diffusion system according to claim 1, characterised in that said at least one status alarm (14) comprises signalling the failure of said at least one amplifier (31-34).
6. Sound diffusion system according to claim 1, characterised in that said at
25 least one status alarm (14) comprises signalling the failure of said at least one diffuser (35a-38a, 35b-38b).

7. Sound diffusion system according to claim 1, characterised in that said diffusion system is powered by reserve batteries (13) in the lack of mains voltage (11).
8. Sound diffusion system according to claim 7, characterised in that said at
5 least one status alarm (14) comprises signalling the charge state of said reserve batteries (13).
9. Sound diffusion system according to claim 1, characterised in that said control circuit (10) comprises a test circuit (27, 30) adapted to cyclically check the correct operation of said at least one amplifier (31-34).
- 10 10. Sound diffusion system according to claim 1, characterised in that said control circuit (10) comprises a test circuit (27, 30) adapted to cyclically check the correct operation of said at least one diffuser (35a-38a, 35b-38b).
11. Sound diffusion system according to claims 9 or 10, characterised in that said test circuit (27) sends a test signal (25) to the input of said at least one
15 amplifier (31-34) and measures the relevant signal at the output of said at least one amplifier (31-34).
12. Sound diffusion system according to claim 2, characterised in that said management system is a computer.
13. Sound diffusion system according to claim 12, characterised in that said
20 computer allows the programming of the parameters of said at least one alarm signal (14).
14. Sound diffusion system according to claim 1, characterised in that said management system is remote and is connected to said control circuit (10) through cable.

15. Sound diffusion system according to claim 1, characterised in that said management system is remote and it is connected to said control circuit (10) through telephone line (41) or optical fibre (42) or radio link (43).

5 16. Sound diffusion system according to claim 2, characterised in that said management system is adapted to send to said sound diffusion system an activation command (15) of said at least one alarm signal.

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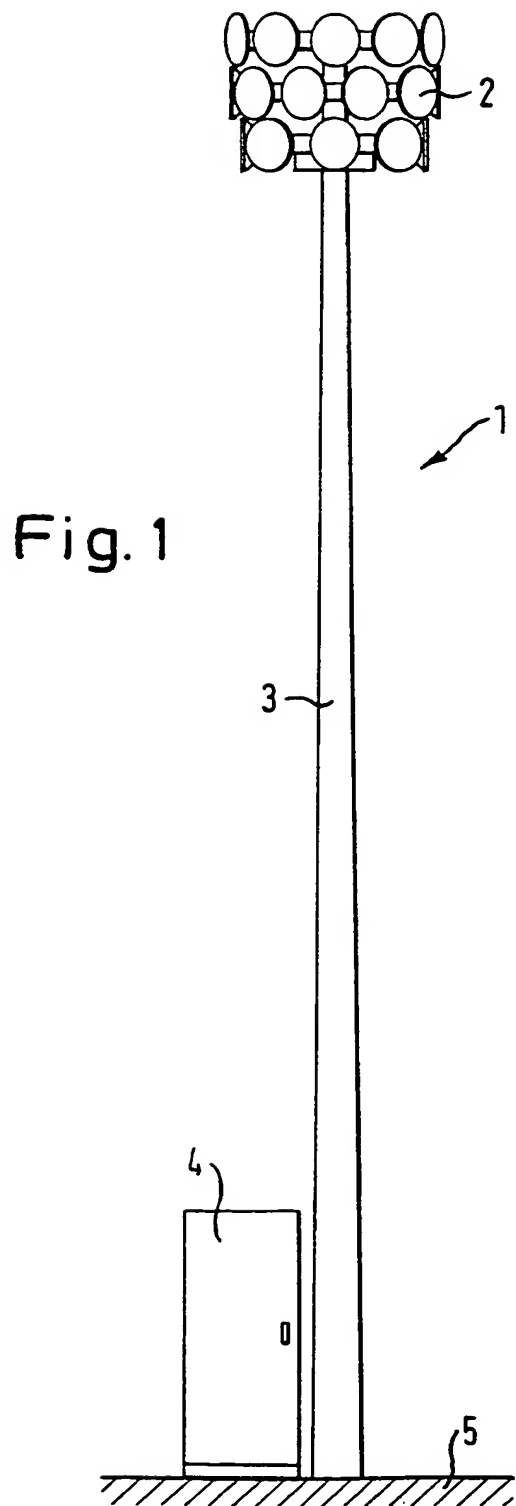


Fig. 2

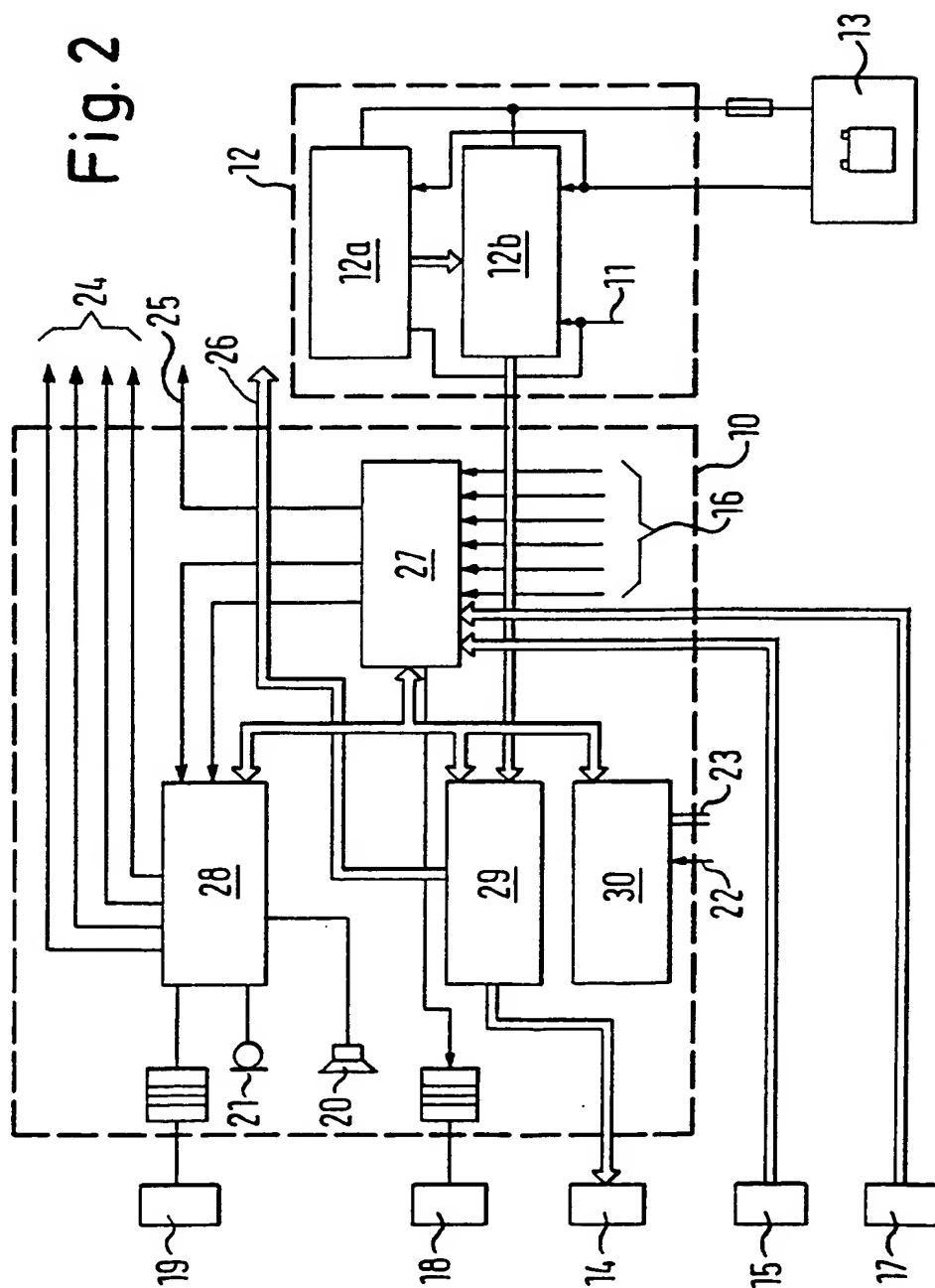
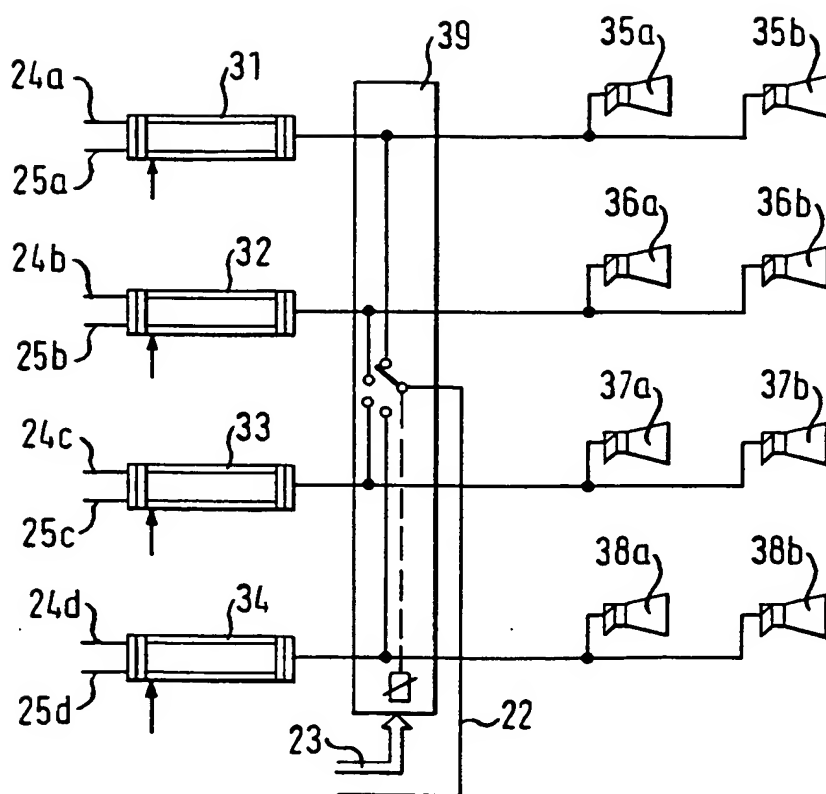
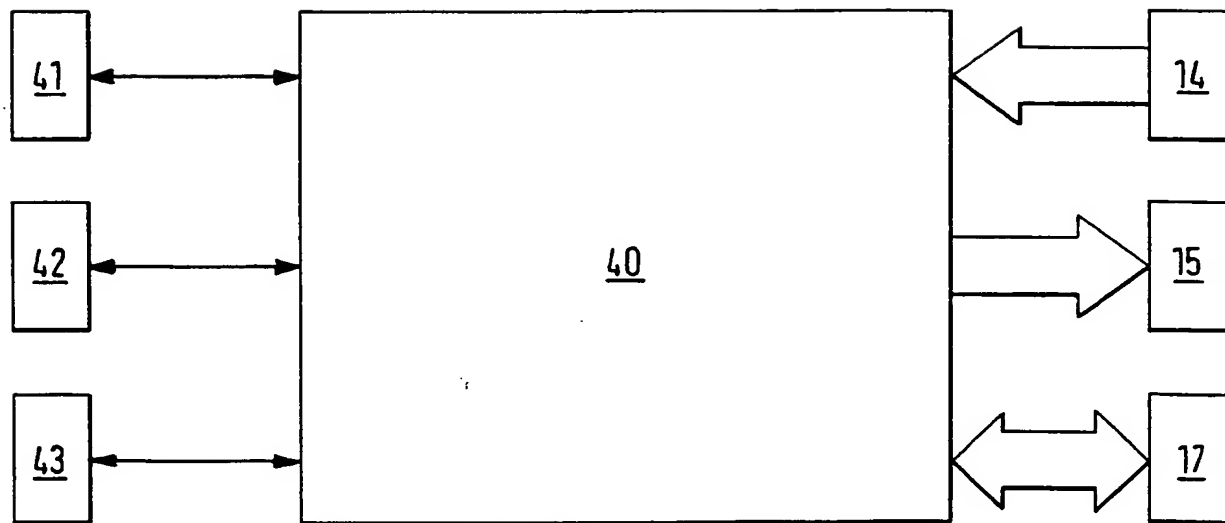


Fig. 3



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Fig. 4



INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 00/06948

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G08B29/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | GB 2 307 082 A (CETSA LTD) 14 May 1997 (1997-05-14) abstract | 1-16 |
| A | GB 2 301 465 A (WEBB MICHAEL JOHN ; GINGER IVAN MARTIN (GB)) 4 December 1996 (1996-12-04) abstract | 1-16 |
| A | WO 98 08205 A (MCBRIDE WILSON ROBERT JAMES) 26 February 1998 (1998-02-26) abstract | 1-16 |
| A | CH 682 856 A (SIREL AG) 30 November 1993 (1993-11-30) claims 1,2 | 1-16 |
| -/- | | |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

26 October 2000

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02/11/2000

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INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 00/06948

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | <p>DE 296 11 600 U (SIEMENS AG) 5 September 1996 (1996-09-05) page 4, line 17 -page 6, line 18; figures 1,2</p> | 1-16 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/06948

| Patent document cited in search report | | Publication date | Patent family member(s) | | Publication date |
|---|---|---------------------|----------------------------|-----------|---------------------|
| GB 2307082 | A | 14-05-1997 | IE | 74261 B | 16-07-1997 |
| GB 2301465 | A | 04-12-1996 | NONE | | |
| WO 9808205 | A | 26-02-1998 | AU | 4035997 A | 06-03-1998 |
| | | | CN | 1234893 A | 10-11-1999 |
| | | | EP | 0920688 A | 09-06-1999 |
| CH 682856 | A | 30-11-1993 | NONE | | |
| DE 29611600 | U | 05-09-1996 | NONE | | |